Climate Change in the Northwest
May 2008

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Carbon Dioxide and Methane concentrations & temperature rise

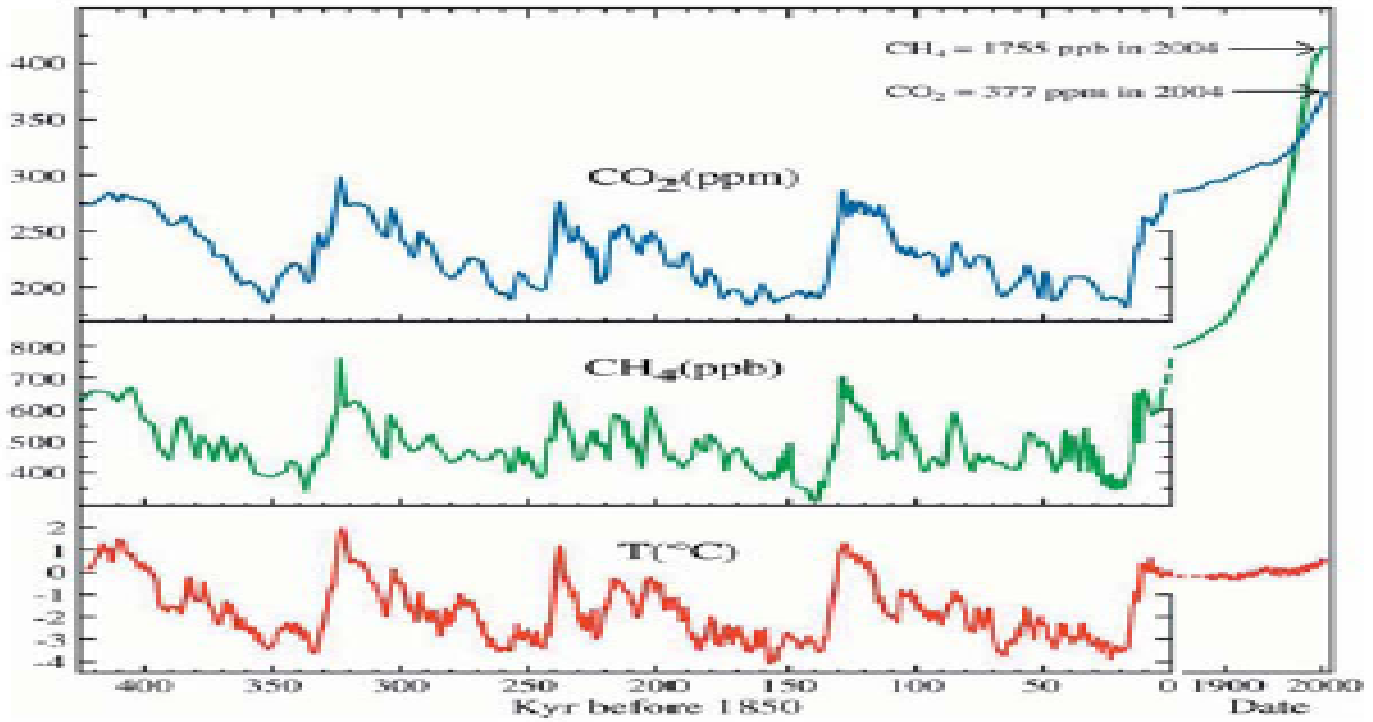

Figure 2. Paleoclimatic data from ice cores. Note the unprecedented recent increases in carbon dioxide and methane. The temperature, though increasing, has not yet reached record levels but will likely do so by mid-century. (Source: Hansen, Clim. Change, 68, 269, 2005.)

Source: ASES, Tackling Climate Change

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The Big Picture

- U.S. GHG Emissions by Gas – 2004
  - Carbon Dioxide 83%
  - Methane 9%
  - Nitrous Oxide 5%
  - Other 2%

Source: Pew Center
from EPA Inventory of GHG Emissions

The Big Picture

- Target Atmospheric CO_2:
  Where Should Humanity Aim?
  James Hansen, et al (2008)
- 350 ppm should be the target
- Current concentration is 385 ppm
- IPPC has set target at 450 ppm

  www.columbia.edu/~jeh1/2008/TargetCO2_20080317.pdf

The 2030 Blueprint, Architecture 2030

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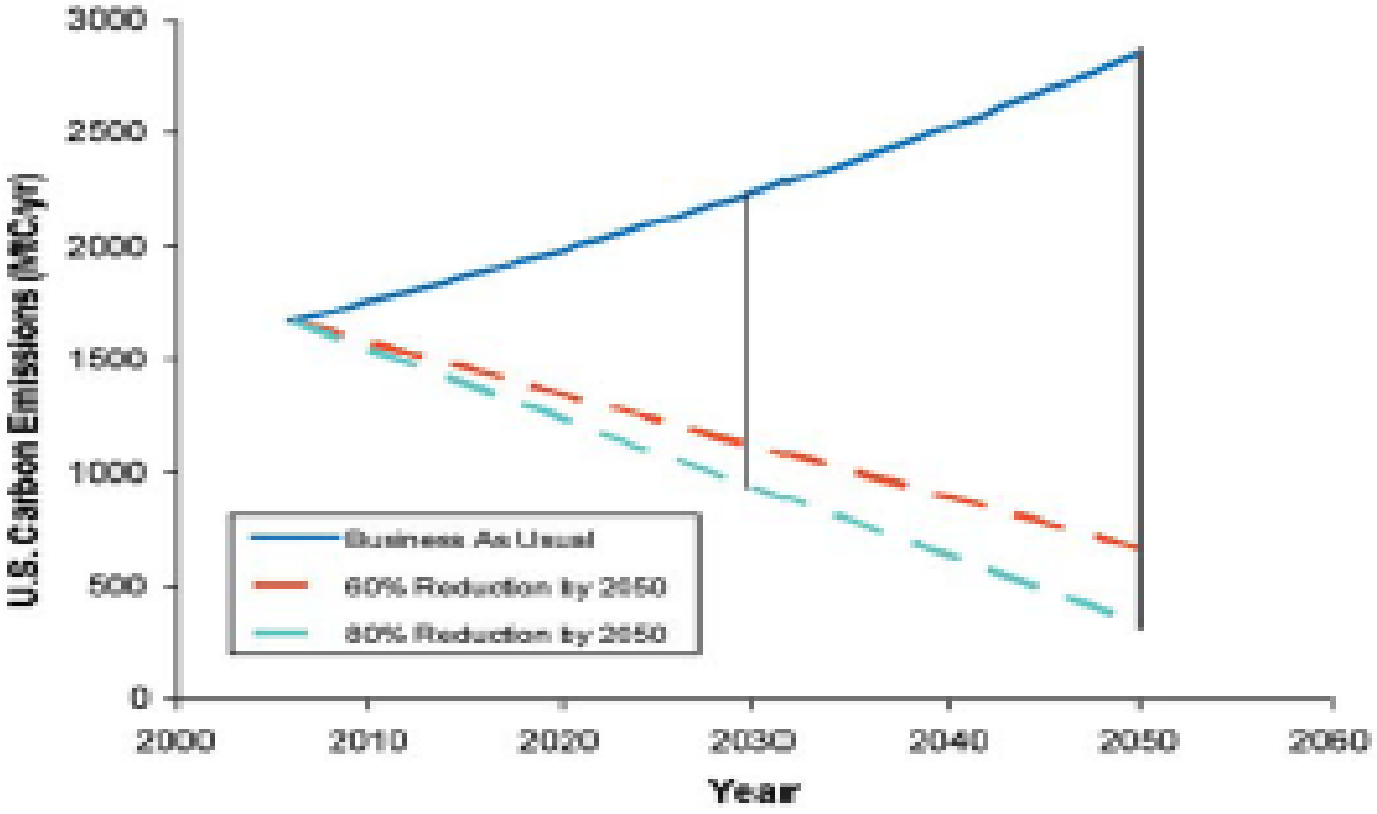
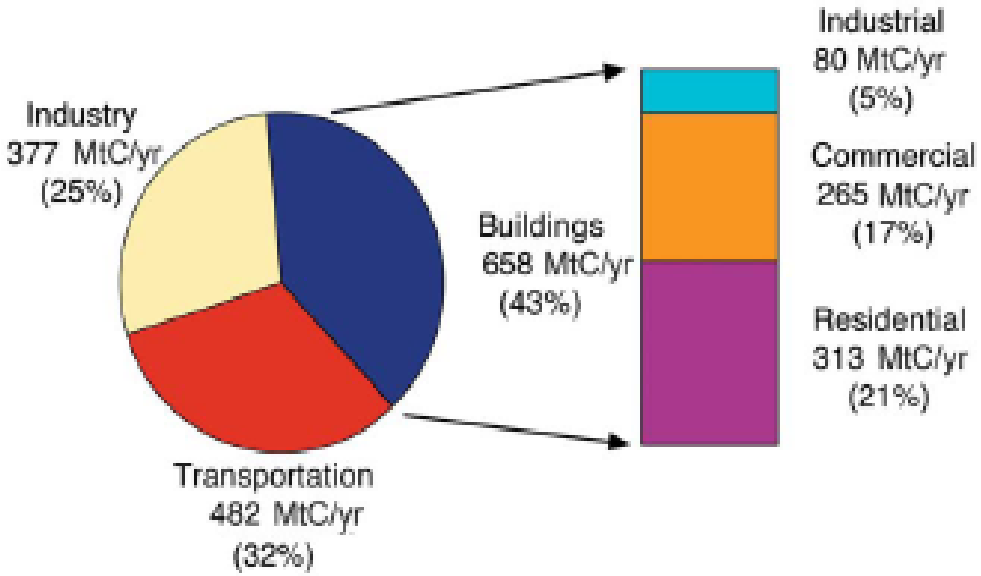
Reducing U.S. CO2 Emissions by 60% to 80% by 2050



Source: ASES, Tackling Climate Change

Reducing CO_2 Emissions through Renewable Energy and Efficiency

The Big Picture of $C0_2$ Emissions



Source: ASES, Tackling Climate Change in the U.S.

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CO_2 reductions from energy efficiency and renewable energy

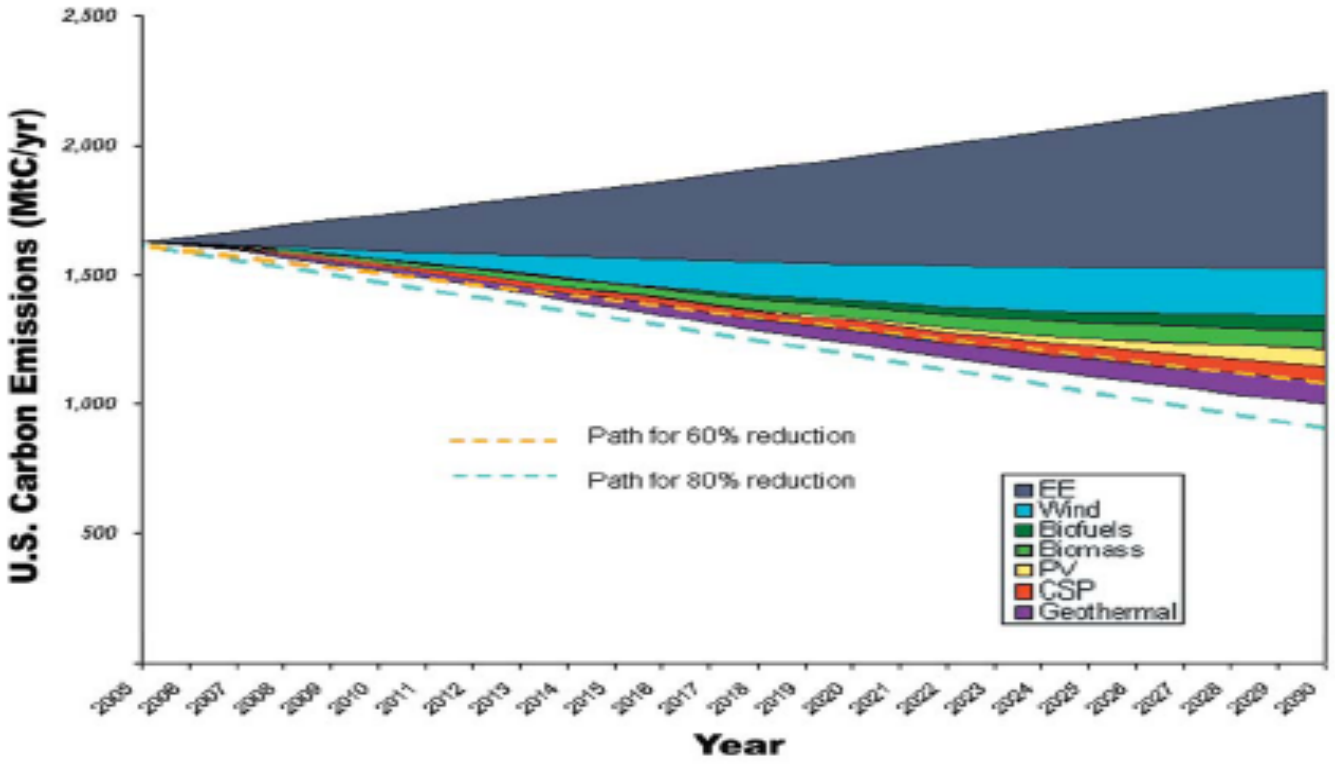

Figure 26. Potential carbon reductions in 2030 from energy efficiency and renewable technologies and paths to achieve reductions of 60% and 80% below today's emissions value by 2050.

Source: ASES, Tackling Climate Change

CO_2 reductions from energy efficiency and renewable energy

To reach 70% reduction by 2050

	Million Metric Tons/Year
– Energy Efficiency	688
– Concentrating Solar Power	63
– Photovoltaics	63
– Wind	181
– Biofuels	58
– Biomass	75
– Geothermal	83

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Cost of Carbon Reductions

- Investments needed to achieve ASES projection for GHG reductions
  - Energy efficiency saves $108 billion/year
  - Wind costs zero (it breaks even)
  - Other renewable energy systems would cost about $30 billion/year

  = Net savings of $80 billion per year

  Source: Solar Today, March/April 2008

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Buildings

- Each home's contribution to global warming is slight, but added up, accounts for about 20% of greenhouse gas emissions in the United States.
- If you add in commercial and industrial buildings, that is nearly half the GHG emissions in the U.S.
- good news -- we know how to build homes and other buildings so that they use very little energy
- passive solar design techniques such as heating, ventilation, daylighting and shading.
- Carbon neutral buildings - not only would all new buildings not consume fossil fuels for heating and cooling, they would get their electricity from renewable sources.
- The basic regulatory tool is a **building code**. Since about 1992, the federal government has had a program to help states and local governments incorporate energy efficiency requirements into their building codes.

U.S. National Policy
Existing Laws

1992 Title 26

Energy Policy Act of 2005

Energy Independence & Security Act, 2007

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Energy Policy Act of 1992
Title 26

- Authorized $120 million in grants and low interest loans from Dept. of Energy to tribes for development of energy resource.
- Theme was “vertical integration”.
- Created Indian Energy Resource Commission at DOI.
- Tribal Gov’t Energy Assistance Program to “encourage the adoption of energy efficiency and renewable energy projects on Indian reservations” with “such sums as necessary” appropriations.

Energy Policy Act 2005

- DOE Indian energy program. $20 million 2006-2016.
- Includes energy efficiency and energy conservation.
- Includes carbon sequestration program.
- DOI grants for tribal energy resource regulation, tribal laws, energy inventories, and feasibility.
- Wind energy for firming power to WAPA.
- Energy Efficiency in federal housing thru HUD and EE technology, shared savings contracts.
- Amends NAHASDA to include goal of greater EE.
- not comparable to the federal programs for writing energy efficiency into building codes.

2005 EPACT

- Funding for states who achieve and document a 90 percent rate of compliance with building codes that meet or exceed the 2004 edition of the accepted standards for residential and commercial buildings.
- $25 million per year, including $500,000 for training state and local gov't officials.
- No funding for tribes.

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Energy Independence and Security Act of 2007

- ***Tribal Energy Efficiency and Conservation Block Grants***
- 2% statutory set-aside for tribes in **Section 543.**
- If Congress fully funds the tribal block grant program, there would be $40 million in grant funds available each year for tribes.
- Should the Department decide to divide that funding equally among all federally recognized tribes, each tribe would receive approximately $70,000 annually.

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Energy Independence and Security Act of 2007

- technical assistance;
- residential and commercial energy audits;
- financial incentives for energy efficiency improvements;
- energy efficiency and conservation programs for buildings and facilities;
- building codes and inspection services;
- conservation programs, including source reduction and recycling;
- capture and use of greenhouse gases;
- installing renewable electric power systems (solar, wind, fuel cells, biomass) at tribal buildings.

Energy Independence and Security Act of 2007

- ***Biofuel Research and Production Grants –*** **Section 223** grants include Tribal colleges and tribal government agencies. $25 million in each of fiscal years 2008, 2009, and 2010.
- ***Grants to Tribal College and Universities –*** **Section 230** directs the Energy Department to make grants for research on the production of cellulosic ethanol which – unlike corn or wheat-based ethanol – is produced from a wide range of resources including wood chips and grasses. Tribal colleges and universities are expressly eligible. Total of 10 grant awardees.

Energy Independence and Security Act of 2007

- ***Manufactured Housing*** – **sec. 413** increases energy efficiency requirements.
- Residential buildings (other than manufactured housing) generally subject to building codes adopted by states or local governments. Federal government provides assistance and incentives to states and local governments to update building codes to enhance requirements for energy efficiency. 42 U.S.C. § 6833.
- Overlooks principle that tribal governments are the law-making authority for trust lands within reservations – local government building codes do not apply.

Energy Independence and Security Act of 2007

- Title IV -- Energy Savings in Buildings and Industry
- Does not include tribal governments.
- Section 494 creates Green Building Advisory Committee which includes representation of state and local government green building programs, but no tribal representation.

Lieberman-Warner

- The subject of building codes for residential buildings is not addressed in EISA, but it is addressed in S. 2191, America's Climate Security Act.
- Section 5201 of ACSA would provide assistance and incentives for states and local governments, but not tribes, to meet the 2006 edition of the International Code Council's residential energy code, a code that was developed for adoption by local governments and which requires some re-working of its administrative provisions to fit tribal governments.
- $25 million a year.

Western Regional Climate Action Initiative

- Agreement signed Feb. 2007 by Governors of Washington, Arizona, Oregon, New Mexico and California
- Components
  - Set an overall regional goal for reductions
  - Develop a design for a market-based, multi-sector mechanism to achieve the goal (a cap and trade program)
  - Participate in a regional GHG registry

www.westernclimateinitiative.org

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State Programs

- 25 States have action plans
- EPA suggests – create a task force, then –
  - Develop a greenhouse gas inventory
  - Project future emissions based on population, economic growth, and other factors
  - Identify areas where emissions can be reduced
  - Develop a voluntary greenhouse gas emission reduction goal

www.epa.gov/climatechange

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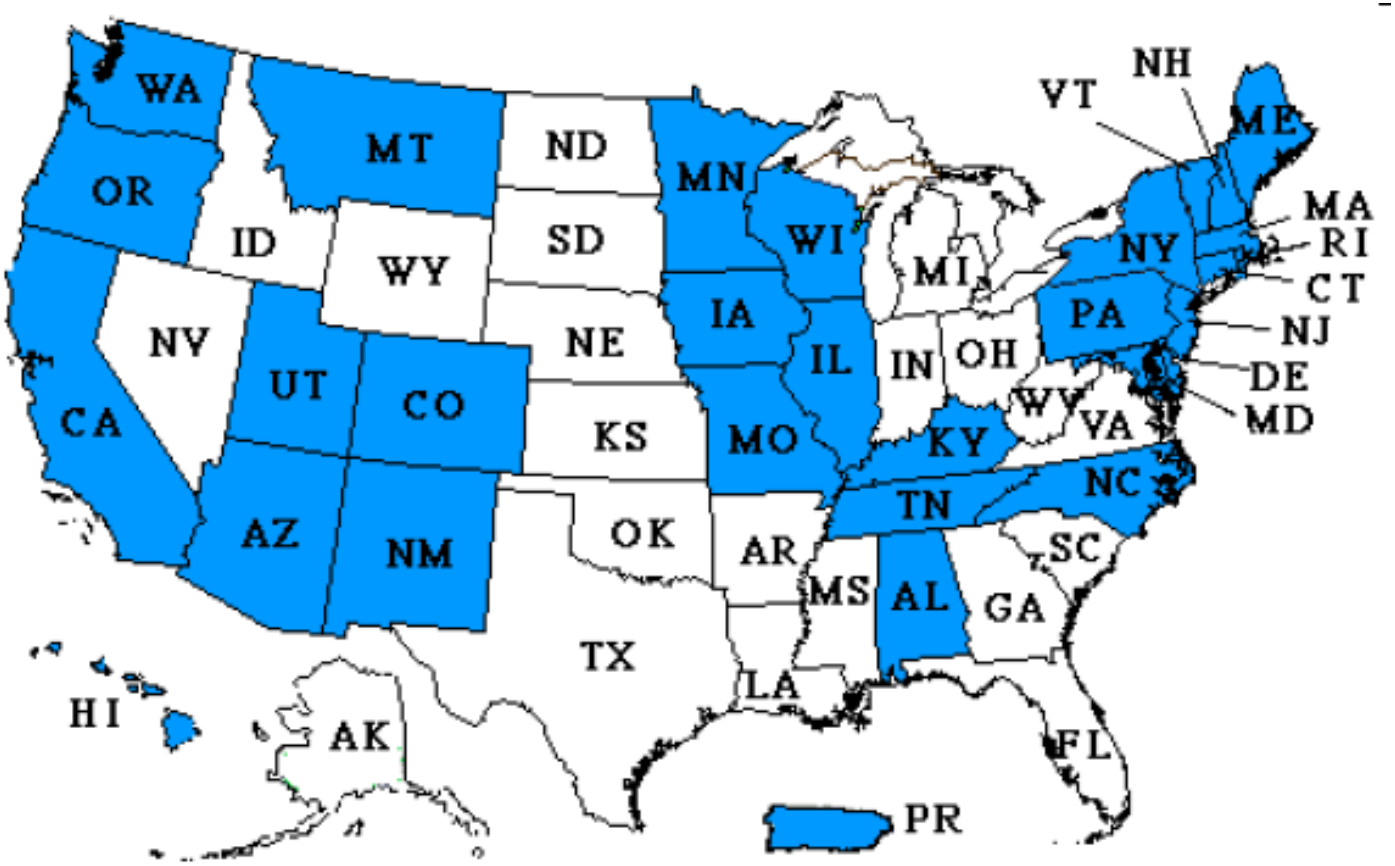
State Programs



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Cities & Local Governments

- International Council for Local Environmental Initiatives –

  Local Government for Sustainability

  Cities for Climate Protection

  www.iclei.org

Five Milestones

1. Baseline inventory and forecast
2. Reduction target for forecast year
3. Develop local action plan
4. Implement policies and measures
5. Monitor and verify results

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U.S. Mayors Climate Action Handbook

- Local Governments have power over major sources of CO_2 emissions –
  - Energy use
  - Transportation
  - Waste
- Cities exercise control through –
  - Land use and zoning
  - Building codes
  - Infrastructure investments
  - Municipal service delivery
  - Management of schools, parks, recreation areas

www.coolmayors.com

- Model Ordinances
  - Land Use / Transportation
  - Commute Trip Reduction
  - Green Vehicle Fleets
  - Pedestrian / Bicycle Planning
  - Green Power
  - Energy Efficiency
  - Procurement
  - Green Buildings
  - Urban Forestry
  - Recycling and Waste Reduction

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Green Buildings

- Building Codes Assistance Project (for State and Local Agencies)
  www.bcap-energy.org

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Energy Efficiency in Buildings

- Department of Energy
  Building Energy Codes Program
  - Free software and technical support for states and local governments
- U.S. Green Building Council
  - LEED Initiatives in Governments and Schools
- Architecture 2030

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U.S. Green Building Council
www.usgbc.org

LEED® Initiatives in Governments and Schools

Updated: 02/01/08

Various LEED initiatives including legislation, executive orders, resolutions, ordinances, policies, and incentives are found in **75** cities, **23** counties, **17** towns, **27** states, **12** federal agencies, **10** public school jurisdictions and **36** institutions of higher education across the United States.

Please keep us up to date: publicpolicies@usgbc.org

See www.usgbc.org > Resources > Government for the most current list.

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U.S. Department of Energy Building Energy Codes Program

Building Energy Codes Program

DOE's Building Energy Codes Program is an information resource on nationa model energy codes. We work with other government agencies, state and lo jurisdictions, national code organizations, and industry to promote stronger building energy codes and help states adopt, implement, and enforce those codes.

The Program recognizes that energy codes maximize energy efficiency only when they are fully embraced by users and supported through education, implementation, and enforceme

Free Software

RES*check*
RES*check*, RES*check-Web*, RES*check* Package Generator

COM*check*
COM*check*, COM*check-Web*, COM*check* Package Generator

Technical Support

Resource Center
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Ask an Energy Codes Expert
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www.energycodes.gov – S 2191, section 5201